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Teachers` Perception Concerning Computer Use

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Abstract

Our research aims to analyze the educational valences of using computer and Internet in school activities and homework in a technological world. For this purpose we have investigated teachers' perception about computer and Internet use in order to stimulate knowledge, development of cognitive and social skills and to improve academic performances of their students.
Using focus group interview, questionnaire and observation, we have reached to the following findings: investigated teachers are using only occasionally computer and internet during their classes (excepting teachers which are teaching information technology classes); most often, teachers use the computer for routinely work and less for other activities such as individualized learning, cooperative learning outside classroom; mostly, computer is used to search and find information, and the less to express creativity.
In conclusion, very few teachers use both traditional teaching methods and educational resources involving the use of Internet by the students in order to develop skills such as: independence, curiosity, critical spirit, etc. Although for the last few years, in Romania, an educational measure was to develop computer competencies in educational process, both for teachers and for students, our findings leads us to conclusion that computer and Internet use is perceived less an educational resource and more a communication way.

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Keywords: computer use, didactic activities, teachers' perception, teaching resources and methods, advantages of computer use

1. Introduction

A challenge for researchers in educational field for the last 20 years was the ways in which information and communications technologies are integrated and involved in didactic process. Promoting the use of technology in education requires holistic and concurrent strategies. Studies that investigated the impact of specific variables on computer use in the classroom – like attitudes toward computer (Albrini, 2006), computer experience (Bovee, Voogt, Meeliseen, 2007) or computer training (Galanouli, Murphy, Gardner, 2004) – have reached to the conclusion that those variables has a rather low influence (van Braak, Tondeur, Valcke, 2004) (apud Tondeur et al., 2008).

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"In a response to school-needs and national-requirements, the study of the change of teachers related to integrating technology in their teaching and their growth over time as they learn to use an innovation is significant for policy and educational intervention." (Yang, Huang, 2008, p. 1086)

Our present research represents a second stage in a more complex study meant to support Teacher Training Department from our university to develop a strategy in order to improve didactic activities' efficiency by using new technologies. For the last few years, our department has been involved in many research projects and a welcomed consequence was the development of its technical basis: computers, projectors and smart boards received as laboratory equipment.

So, the *first stage of our study* has started from an empirical finding: although our classrooms have been equipped with modern technical means, our students' motivation for study and their acquisitions haven't been improved as we expected. In this first stage we have investigated masters' *students*' motivation to use ICT learning space (in a blended learning system). Despite of difficulties identified, the students have been able to find some advantages of blended learning: quick access to information, fast feed back and the possibility to cooperate with other students. But, their motivation for using online learning was mostly extrinsic (a condition to pass the exams); their difficulties were connected to their inadequate skills for using computer and virtual learning spaces (Moise, Suditu, Eftimie, 2010). Also, we have to mention that mostly of masters' students involved in our research were already teachers, so their answers could be analyzed both from students' perspective and teachers' perspective. More, we were interested to discover the perception over the usefulness of computer and Internet for students, future teachers, from lowers years of study. We have found that our subjects identified information and entertainment, and socialization function (only few of them) and ignored cultural function ("meeting" with poetry, theatre, plastic arts etc.), educative function (for example, watching educative programs "TV-school", scientific documentaries) (Eftimie, Margaritoiu, 2010).

The *second stage of our study* – the subject of our present research – proposed to investigate *teachers'* perception on computer (and Internet) use in classroom in order to stimulate knowledge, development of cognitive and social skills and to improve academic performances of their students. Our premise was that it is not enough to have technology in a school, but more important is *how* teachers and students use it in didactic process. Concerning students' perception on computer (and Internet) use, this premise was confirmed by our previous findings: students investigated have indicated mostly information, entertainment and socialization as functions for computer and internet use.

Starting from our present findings, we intend to analyze in a future experimental research (a natural experiment) the impact of our investigated teachers' involvement in a blended learning masters program on their perception concerning computer and internet use (in present, mostly of our teachers - subjects are involved in a masters program which involve virtual learning spaces).

2. Methodology

2.1. General aim of present study

As we have already mentioned, our present study proposes to analyze a detailed perspective of teachers and their vulnerabilities concerning computer use in didactic activities. We have started from the premise that, although teachers admit the advantages of computer use in didactic activities, they mostly use traditional methods and resources in didactic activities.

While previous stage of our study focused on students' attitude concerning computer use in school activities (and our findings confirmed their preferences for activities that imply computer use), in this second stage, we have analyzed teachers' perception concerning:

- types of activities that they are involved in (didactic activities);
- resources / means and methods used;
- types of activities they consider opportune to involve computer (internet) use in;
- informatics applications used mostly in formal education;
- skills requested by computer use;
- advantages, constraints and time allocated for computer use.

2.2. Sample

In order to build this complex image of teachers' perception concerning computer use, we have selected our research group from teachers that now are involved in different training programs developed in our university – Petroleum – Gas University of Ploiesti (Romania); this research group comprised a number of 100 subjects, specialists in 4 curricular areas as we can see in table below:

Table 1
Subjects according to curricular areas

Curricular areas	No. of subjects	Age distribution		
		< 30	30 - 50	> 50
Language and communication	41	8	26	7
Mathematics and natural sciences	22	4	11	7
Technologies	19	2	9	8
Educational Sciences	18	0	9	9
Total	**100**	**14**	**55**	**31**

We haven't been interested in analysing our sample considering teachers gender, considering other researches' findings on multimedia computer-supported instructional tools that have reached to the conclusion that gender has no significant effect (A. Antonietti, M. Giorgetti, 2006).

2.3. Methods and instruments

Our project proposed a research predominant *qualitative*, so that we have chosen to use methods like *focus group interview and observation*, but in order to offer more arguments as support for our findings, we have decided to use as well the *questionnaire*. We have applied first focus group interview and observation method, then the questionnaire in order to capture teachers' perspective considering computer and internet use in classroom. Focus group interview was meant to familiarize our subjects with research theme and the guide interview contained questions about: allocated time for different types of activities during didactic process, information regarding types of resources / means (video projector, computer assisted instruction, worksheets, notebooks, mail, encyclopaedias, magazines, library books etc.) used during instructional process and types of teaching methods (like supporting group activities for students, inter and trans disciplinary approaching, teaching intellectual techniques – looking for, collecting and organizing information etc.).

Both focus group interview and questionnaire addressed to teachers has been conceived to offer detailed information regarding two major aspects:

I. general approach for didactic activities:

1. most frequent activities developed during classes;
2. methods and resources used.

II. computer and Internet used to plan and conduct lessons:

1. computer use in didactic activities;
2. types of informatics' applications used;
3. types of abilities requested by computer use;
4. advantages of computer and internet use;
5. disadvantages / constraints of computer use;
6. time allocation for using computer / Internet home and during class activities.

If focus group interview guide proposed free answer questions, questionnaire have proposed both free answers and pre-defined answers. Observation method offered important information about teachers' attitude during focus group meeting.

3. Findings and discussions

Through the focus group interview and questionnaire applied to teachers we have observed the way in which our subjects estimated:

- computer and Internet use in planning classes; team teaching activities in order to create a complex perspective of studied realities by using exploring and discovery methods; stimulating group activities for students; using non-traditional methods in evaluation;
- using different types of *resources / means* and teaching *methods*: using modern, non-traditional instruction means (encyclopaedias, Internet, ITC tools); monitoring and guidance of students in activities of search, collection and organization of information; guidance of students in activities they run in the process of consolidating knowledge; projecting work activities that involve ways of collaboration between students and organizing the classroom in small working groups; projecting work activities that involve learning experience exchanges between students; using ways to create in students intrinsic motivation for learning;
- using different types of *abilities* (involved in computer use): fuse of computer in relation with students in class, in the specialized lab and outside classroom to find information, for multimedia projects, to express creativity, to simulate phenomena, to evaluate, for learning through cooperation; level of computer skills to prepare course materials, to find information for personal use, to use electronic mail to communicate with others, to use Internet to take part in collaborative projects and to support students in finding useful information for school activities; use of computer and Internet in class to learn new information, to motivate students, to improve school performance, communication among students and teachers, to find information including situations like job hunting;
- *advantages* and *constraints* of computer (internet) use in classrooms: advantages like improving communication process (teachers – teacher, teacher – students, student – student), easy and quick access to information and disadvantages like low connection to internet system, costs, time;
- *time allocation* for computer / internet use home or to school (or classroom).

Concerning the repartition of time allocated for *different types of activities during classes*, we have selected those types of activities that could involve computer use. The frequency of our subjects chooses are presented in Chart 1:

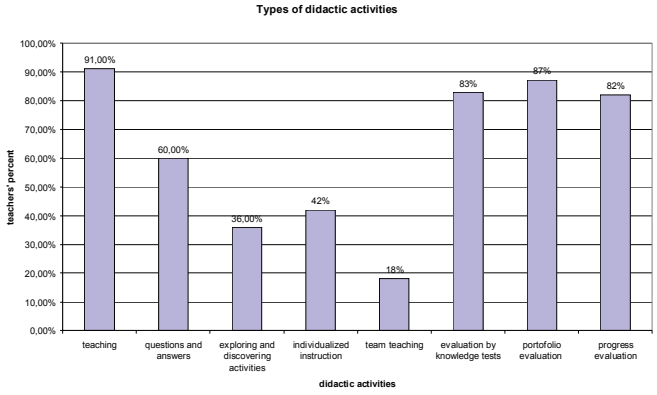

Chart 1 – Time allocated to run different types of didactic activities

From the chart above we notice that the activities for which teachers allocate more time are teaching and evaluation process. The most frequent choice *(91%)* that teachers made was *teaching,* described by our subjects as "activity meant to transmit and receive information, from teachers to students"; next three choices were connected to evaluation process: evaluation by portfolios (87%), evaluation by knowledge tests (83%) and progress evaluation ("evaluation based on effort and involvement in learning process") (82%).

We easily observe a contradiction between portfolio evaluation, an alternative method of evaluation ("modern evaluation method") and traditional teaching approach: teachers are not constant in their approach of didactic process. Their teaching implies mostly a passive role of students, but when comes to evaluation, their requests tend to fall into a less traditional approach (evaluation by portfolio and progress evaluation). There is a clear fall between teaching – learning and evaluation approach.

An interesting observation is that not only older, but younger teachers, too, have indicated that most of didactic activities are conceived as *teaching activities* (and evaluation).

This conclusion is confirmed by the choices with *lowest frequency*: individualized instruction (42%), group activities orientated to explore and discover (36%), *teachers working in teams* and *team teaching (18%).* We would

consider that those approaches of teaching activities are more appropriate to be associated with portfolio or progress evaluation.

In order to obtain a more detailed image of teaching process approach, we have analyzed the type and the frequency of resources / means and methods used by our subjects.

Resources type that our teachers mentioned are presented in the chart below:

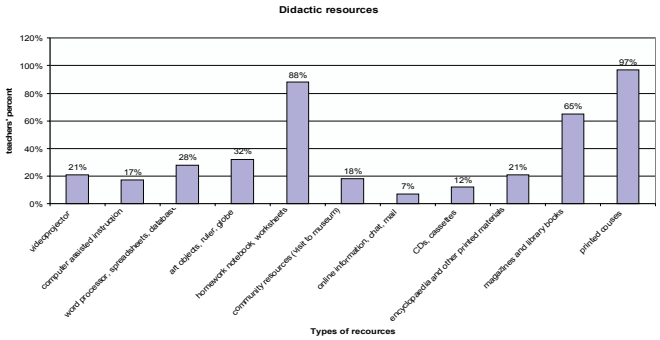

Chart 2 –Resources used by teachers in didactic activities

We noticed that by far the top ranks is using *printed courses (97%)* and homework notebooks and worksheets (88%), and then magazines and library books (65%). Again if confirmed traditional didactic approach of didactic process; as well as in the case of most frequent didactic activities, both young and more experienced teachers are using mostly traditional resources. The less frequent choices are: computer assisted instruction (17%), CDs, cassettes (12%), *online information, chat, mail (7%)*; those percents indicate lack of teachers' interest in computer based resources. On the contrary, previous research (Eftimie, Margaritoiu, 2010) indicated a clear students' preference for electronic information resources, images, online messages; they indicated their preference for "fun school" (Sartori, 2005) which strength is the image, not written words. This finding leads us to conclusion that this student' need is not a reference point for teaching approach (but, as we will see later, in methods' analysis, teachers *declare* that students' motivation represent a priority for them).

Concerning *methods* that teachers have chosen most frequent, the situation is presented in chart 3:

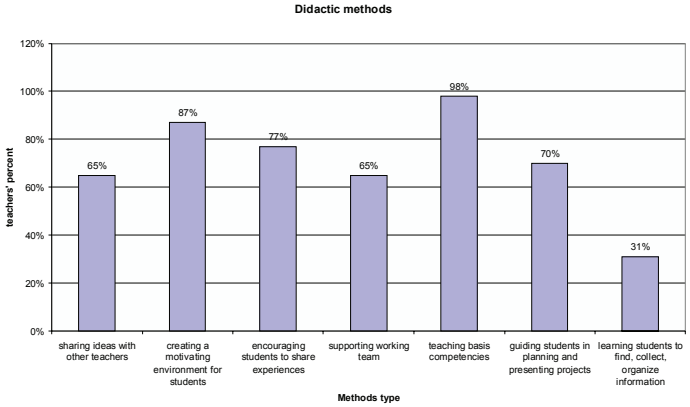

Chart 3 – Most popular methods used in didactic activities

We find that the *teaching methods* with the highest frequency of use are: *teaching basic competencies (98%)* and achieving a motivational climate for the students (87%). As we have mentioned before, there is a contradiction in teachers declaration: their approaching is mostly a traditional one (by resources and methods used), which create mostly an extrinsic motivation for students (and less engagement of them in didactic activities), but in our focus group meeting they identified the efficiency of constructivist methods (for example, guiding students to explore and discover reality, inter- and trans- disciplinary approach of concepts analyzed, supporting cooperating learning etc.). They admit the efficiency of the last methods, but find difficult to integrate them in teaching process: "we do not

have the skills to plan and develop such activities"; "we do not have the specific equipments"; "connection to internet system is poor or is missing in our classrooms sometimes" etc.

More, we have noticed teachers' interest in encouragement of students to share their experiences (77%), guiding students in planning and presenting projects, then supporting team working and sharing ideas with other teachers (65%). We were interested in what teachers understood by "guiding students for planning and presenting their projects"; teachers' responses were surprising: "we offer them 1-2 pages with instructions and let them to collect and organize information.

The last place (by far the last one) in methods hierarchy are occupied by teaching students to *find, collect and organize information (31%):*

"Sometimes is enough information in printed courses and in their notes made in classes.", considered one of interviewed subjects.

We consider important to note this because teachers should be more than interested to develop such skills on students, considering National Curriculum prescription which specify that teachers have to develop the methodology for intellectual work and the ability to explore reality to their students. This makes us wondered what teachers understand by "teaching basic competences" and their answer confirmed their preference for traditional approaching: for them, developing students' competences means achieving knowledge and skills and not learning students to transfer and use this knowledge and skills in dynamic, new situations. These findings lead us to the conclusion that very few teachers use both teaching methods and educational resources involving the use of Internet and developing abilities in students like: independence, curiosity, critical spirit, etc.

For the second part of our research, information regarding *computer use* to plan and conduct classes, items were created to obtain information about teachers' perception on the type of didactic activities that request computer use, informatics applications used mostly in formal education, advantages, constraints and time allocated for computer use in classroom. First, we were interested about *types of activities that involve computer use*, in teachers' perception. So we could find that most of them considered that computer is necessarily first *"to find information"*, second, "when we are working in lab", third "when we are involved into an activity with teachers that are teaching informatics", then for evaluation ("we recommend students to document from electronic sources so that they could develop multimedia projects"). Teachers showed *less interest* for improving academic performances based on organizing and presenting information, as well as for *cooperative learning or individualised (personalized) learning*.

This observation underlines, again, the lack of interest of teachers for a less traditional approaching of teaching (which promote individualized teaching, team working, expressing creativity, developing transferable competencies etc.). We also have notices an interested observation: less than 50% of investigated teachers have associated a specified didactic activity with computer use. This observation could be interpreted as a lack of confidence from teachers' side considering computer use in didactic activities.

Next item was meant to highlight the frequency of use for some *informatics applications* in the teaching process, as we could see in chart 4.

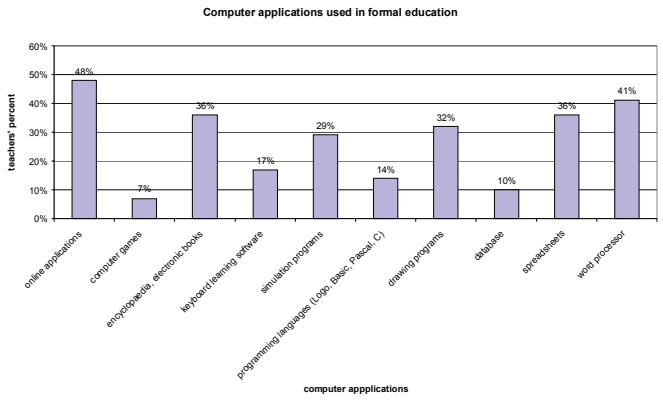

Chart 4 – Computer applications used in formal education

The chart below indicates that teachers most frequently used applications such as *online applications (48%)*, word processing (41%), Excels type applications (36%) and finding and consulting encyclopaedia or other electronic books (36%) or drawing programs (32%). More than half of teachers that had chosen "finding and

consulting encyclopaedia or other electronic books" were younger teachers; this indicated their openness for this kind of application (information source) compared with more experienced teachers that have indicated their clear preference for printed books.

The less interesting computer applications for investigated teachers are *databases (10%)* and computer games (7%). We could understand teachers' lack of interest for computer games, although adolescents' seems to be interested about (Eftimie, Margaritoiu, 2010); researches have clearly put in evidence the connection between video games consuming and aggression (see, for example, Funk, 1995; Funk, Bechtoldt Baldacci, Pasold and Baumgardner, 2004). However, others studies indicated positive effects of video games – cathartic effects – which recommend them for class use with therapeutically purpose in simulated situation of real life (Griffiths, 1999). But, beyond all these controversies about video games, we consider less justification for the low level of teachers' interest for databases; this application is essential for research skills, a basic component for academic level activity.

It is also remarkable that only 29% of investigated teachers have indicated simulation programs as an application used in their classes; this kind of program we consider absolutely useful for students which are following classes on technical faculties, and simulation method could be very efficient to understand the way that phenomena, machines or technological equipments are functioning. Most of the teachers that have identified the importance of modelling and simulation programs were teaching informatics or technologies.

We also notice, as for the previously item, the highest frequency for an application chosen is situated under 50% of teachers. This situation could indicate a poor familiarization with computer application (excepting teachers which are teaching students from technical specializations).

Considering *skills requested by computer use*, teachers (both young and experienced ones) were more interested (again) first in *finding information*, then in using e-mail (in order to communicate with others), using computer to prepare courses (they indicated here writing their courses using computer, conceiving Power Point presentations, preparing graphics or schemes etc.) or supporting students to use computer in didactic activities (mostly in technical faculties' teachers' answers). *Less interest* teachers showed for supporting students to find internet resources in order to help them to solve different tasks or *to use internet to connect with others and involve in team projects*. More, experienced teachers mentioned their concerns regarding students' tendency to plagiarism when they are consulting internet sources.

So, we could notice that teachers are mostly interested in word processor or Power Point presentation, and less for cooperating (both them and their students) with other persons in team project activities.

Concerning *computer utility* (computer advantages), situation is presented in chart 5:

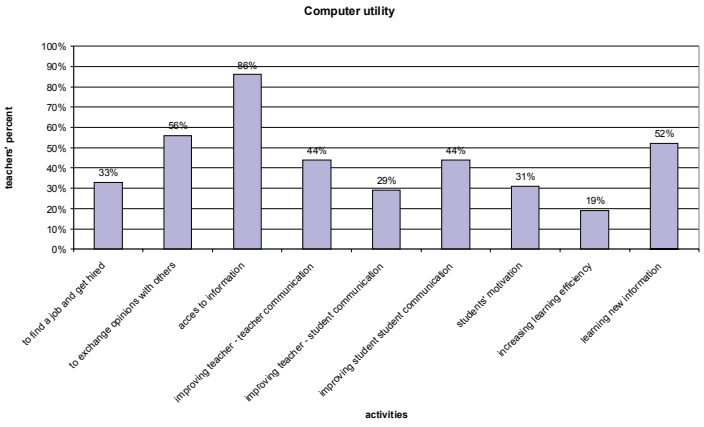

Chart 5 – Computer and Internet utility

We could notice that by far the most "voted" advantage of computer use was *access to information (86%),* followed by exchanging opinions on different themes of mutual interest with others (56%) and learning new information (52%). Less interest has been shown considering the power of computer based activities for raising students' motivation (31%), improving teacher – student communication (29%) and *increasing learning efficiency (19%).*

So, according to chart 5 we notice from the analysis of the replies to this item that teachers most frequently use the Internet to access information and the least to enhance academic performance. We consider that it's not a

problem of been uninterested of this kind of activity, but teachers do not trust in computer based activities' power to stimulate and improve students' performances (despite that, as we have mentioned before, students are mostly interested in this kind of activities).

This image is completed by situation presented in chart 6, referring to *constraints* identified by teachers in computer use:

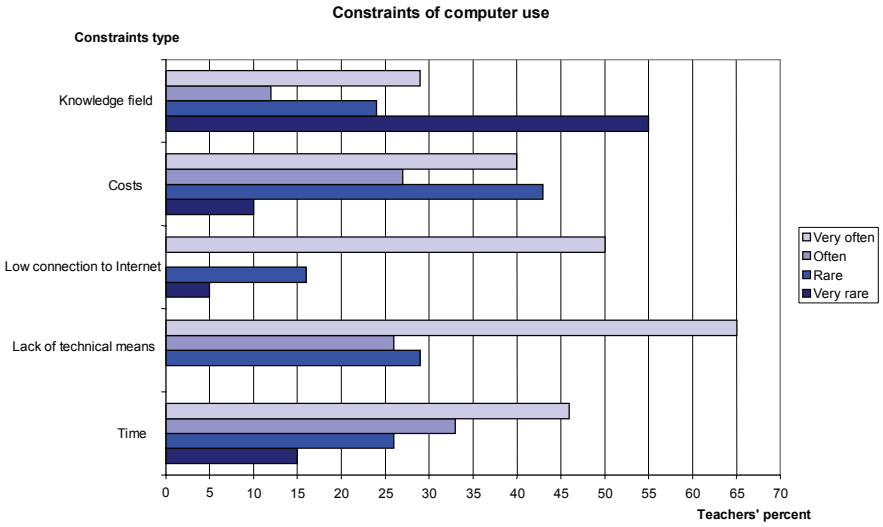

Chart 6 – Frequency of occurrence of certain constraints in computer use

Of the selected constraints, the most frequently mentioned by teachers are related to *lack of technical means (65%)*; then they have mentioned was low connection to internet which emphasizes that teachers who use the Internet most often encounter logistical problems. Interesting is that the *least common* constraints are those concerning the *knowledge field (*less than *30%* of investigated teachers have mentioned that very often knowledge field is a constraint for computer use in their didactic activities); this finding is sustained by teachers' affirmation that "no matter what the knowledge field, all teachers could benefit from computer advantages". We also noticed that those constraints have been indicated both by young and older teachers.

Interesting is that on the third place as constraint for computer use in didactic activity, teachers mentioned *time*. They motivated their choice (not to use computer) by "lack of time": "There are so many things to say so that, using computer and especially internet, we only loose time, precious time. That's why I prefer to give a lecture, sustained by graphics or schemes, rather than use informatics technology." We could comment that, if we only, for example, would conceive graphics, schemes and project them, could save a lot of time, time that could be used to describe, analyze and understand those graphics, schemes etc.

Teachers' concerning / complaint about the limits of time were confirmed by their responses about *time allocation* for the use of computer (and internet) home and in school. So, most of them are using computer for personal interest between 5 and 7 hours for every week as: less than 1 - 2 hours in classroom and less than 5 hours home per week. So, we noticed that teachers use quite little time with computers and the Internet in school during their classes.

4. Conclusions

Teachers' involvement in training programs meant to develop basic computer skills – imposed in the last years as an obligatory measure of educational policy – in order to extend computer use in schools does not mean a permanent giving away of traditional methods used in didactic process. Those traditional methods, for many generations of students have been proving their efficiency. But now, we, as teachers (or future teachers), we have to became ready to deal with new challenges of social field (including labour market), social field in which young people (now students) need to integrate.

A declared intention of our investigated subjects was to create *motivation* for their students. Initially they indicated this purpose as a priority, but later, when they have been asked to mention computer use advantages, they considered that computer use in didactic activities is not motivating for students (only 31% of teachers indicated computer activities as motivating for students). Considering previous research findings (Eftimie, Margaritoiu, 2010) which indicated students' preference for visual activities involving computer, we consider that teachers should become more aware that using informatics in teaching process could be an efficient strategy to motivate students to better involve in learning process.

Most of our subjects develop a traditional teaching approach (surprisingly, both young and more experienced teachers). This is probably one important reason for their preference for *traditional methods and resources*: teaching (expositive methods that involve transmission of information from teacher to student, using printed courses (and less specialty magazines or access to databases by computer). If we would have expected that younger teachers to be more orientated for using computer based technology, our surprise was to find that both them and more experienced teachers use mostly traditional resources and methods. But, younger teachers showed more interest for using computer to plan and conduct courses, as well as developing skills for online team research.

This is still a "normal" situation in Romania given that in our book stores there is an evident preference for this traditional type of printings: theoretical book (printed courses) and less orientated for practice. But, nowadays realities determine us to use more non-traditional methods and resources that allow quick access to more and diverse information; this is important for our developing process as researchers. As it were expected, specialists in teaching informatics technology emphasized more then others their preference for computer use and advantages is didactic activities. Others researches confirmed the idea that teachers "do not posses adequate knowledge and skills related to building models for supporting students in learning science, learning about science, and learning how to do science" (Justi and Gilbert, 2002) (apud Valanides and Angeli, 2008).

More, although teachers seems to be convinced about *advantages* of computer use (in planning, developing, evaluating didactic activities), on the other side we conclude that they are confused about the skills requested and the concrete modalities by which could obtain these advantages in their activities. Educative potential of the computer technology refers not only to information's transfer, but could be extended to develop a set of skills, as well as developing attitudes, behaviours and values.

We also observed a contradiction between *evaluation methods* that teachers declared that are using (portfolio evaluation) and *traditional teaching approach*: teachers seem not to realize that their teaching involve mostly a passive role for students, but when comes to evaluation, their requests tend to fall into a less traditional approach (evaluation by portfolio and progress evaluation). There is a clear fall between teaching – learning and evaluation approach. More, they seems to be less interested about group activities (for exploration and discovery), as well as for team teaching or team working for teachers. Projects and team working is a demand of nowadays realities.

Both teachers and students need to learn to communicate on large distances, to find, collect, select and organize information, to access databases. Teachers identified as computer use (and advantage) "finding information"; but we consider that not finding is more important, but knowing what to do with it. These skills we consider important to be aware of and develop them. Also is encouraging observation that 81% of investigated teachers had excluded from their "list" of constraints of computer use "knowledge field", so that we could conclude that they are aware of usefulness of computer for any domain.

In order to develop educative potential of using new technologies is necessarily cooperation between all factors involved in innovation process of educational system. Introducing and raising new technologies' importance have to cope with educational world and society as whole by major challenges as: financing technology infusion, extending internet communication on global level, developing a qualitative educational software, involving schools in this process as an active partner.

So, computer is a real challenge, and using it in education field supposes the art of transforming the power of those resources in power to learn and to integrate it in traditional education, in an optimal way.

5. Limits and future directions for research

Because our research proposed mostly a qualitative analyze, and because our sample was selected in order to offer a basis for our department developing strategy, our findings and conclusions could not be generalized. But, our study could offer the framework for other researches in this field.

More, starting from the conclusions from first stages of our study (students' and teachers' perception on computer use) we intend that the third stage of our study to propose a more detailed analyze concerning the impact of implementing in our university a blended learning system (which involve both face to face and online meetings with students) on both teachers' and students' perception. As other researches demonstrated, teachers' involvement in a learning process that implies the use of computer-modelling tools showed rather encouraging results (Valanides and Angeli, 2008).

Considering this research we propose a training program for teachers involved in this project that help them to learn to use better (than basic skills) informatics technology in order to facilitate their work; to develop their skill to find, collect and organize information and access databases; to use computer in evaluation process (for example to learn to verify the originality of students' paper or homework) and to develop intrinsic motivation for students; to cooperate with other teachers (or specialists) through virtual environment in order to develop on them and their students as well research skills (that implies computer communication).

References

Valanides, N., Angeli, C. (2008). Learning and teaching about scientific models with a computer-modelling tool. In: *Computers in Human Behaviour,* 24 (2), 220 – 233.

Antonietti, A., Giorgetti, M. (2006). Teachers' beliefs about learning from multimedia, in: *Computers in Human Behaviour*, 22, 267 – 282.

Eftimie, S., Margaritoiu, A., Media Influence on Adolescents Aggression (2010). A paper presented on the 13th International Conference on "ICT o the Education in Balkan Countries", Varna, Bulgaria, June 17th – 19th, organized by Balkan Society For Pedagogy and Education, in press Conference Proceedings.

Funk, J. B., Bechtoldt Baldacci, H., Pasold, T., Baumgardner, J. (2004). Violence Exposure in Real – Life, Video Games, Television, Movies, And the Internet: Is There Desensitization? in: *Journal of Adolescence*, 27 (1), 23 – 39.

Griffiths, M. (1999). Violent Video Games and Aggression. A Review of the Literature, in: *Aggression and Violent Behaviour*, 4 (2), 1999, 203 – 212.

***Ministerul Educatiei Nationale, Consiliul National pentru Curriculum. (1998). *Curriculum National pentru Invatamantul obligatoriu (National Curriculum for Compulsory Education)*, Editura Corint, Bucuresti.

Moise, G., Suditu, M., Eftimie, S. (2010). Students' motivation in using virtual learning spaces. A paper presented on the International Conference Computer Based Learning in Science, Warsaw, Poland, Application of New Technologies in Science and Education, Conference Proceedings, 267 – 277.

Sartori, G. (2005). *Homo videns*, Editura Humanitas, Bucuresti.

Tondeur, J., Hermans, R., van Braak, J., Valcke,M. (2008) Exploring the link between teachers' educational belief profiles and different types of computer use in the classroom. *Computers in Human Behaviour* 24, 2541 – 2553.

Yang, S.C., Huang, Y.-F. (2008). A study of high school English teachers' behaviour, concerns and beliefs in integrating information technology into English instruction. *Computers in Human Behaviour,* 24, 1085 – 1103.